

WHAT IS CLAIMED IS:

1. A method of manufacturing a semiconductor device, comprising the steps of:

forming a sunken section in an insulating film formed on a substrate;

5 forming a barrier metal film on said insulating film inclusive of said sunken section;

forming a copper-based film over the entire surface so as to fill up said sunken section; and

forming a copper-based metal interconnection, which  
10 comprises the step of polishing this substrate surface by the chemical mechanical polishing method, using a polishing slurry containing a silica polishing material, an oxidizing agent, an amino acid, a triazole-based compound and water, wherein a content ratio of said amino  
15 acid to said triazole-based compound (amino acid / triazole-based compound (weight ratio)) is 5 to 8.

2. A method of manufacturing a semiconductor device, comprising the steps of:

forming a sunken section in an insulating film formed on a substrate;

5 forming a barrier metal film on said insulating film inclusive of said sunken section;

forming a copper-based film over the entire surface so as to fill up said sunken section; and

polishing this substrate surface by the chemical  
10 mechanical polishing method to form a copper-based metal  
interconnection, wherein said step of polishing comprises  
the steps of:

a first polishing which is performed until at least  
a part of said barrier metal film is exposed, while using  
15 a polishing slurry containing a silica polishing material,  
an oxidizing agent, an amino acid, a triazole-based  
compound and water, wherein a content ratio of said amino  
acid to said triazole-based compound (amino acid /  
triazole-based compound (weight ratio)) is 5 to 8; and

20 a second polishing which is performed until the  
surface of the insulating film other than said sunken  
section is exposed.

3. A method of manufacturing a semiconductor device  
according to Claim 2, wherein said barrier metal film is a  
tantalum-based metal film.

4. A method of manufacturing a semiconductor device  
according to Claim 1, wherein said amino acid is glycine.

5. A method of manufacturing a semiconductor device  
according to Claim 1, wherein said triazole-based compound  
is 1, 2, 4-triazole or its derivative.

6. A method of manufacturing a semiconductor device according to Claim 1, wherein a content of said triazole-based compound is not less than 0.05 % by weight but not greater than 0.5 % by weight.

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7. A method of manufacturing a semiconductor device according to Claim 1, wherein a pH value of said polishing slurry is in a range of 5 to 7.

8. A method of manufacturing a semiconductor device according to Claim 1, wherein said silica polishing material is colloidal silica.